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(54) Erasable digital video disk with reference clock track

(57) An optical disk and compatible optical disk drive enabling erasable (rewritable) optical disks to have the same format and capacity as read-only or (recordable) write-once optical disks. A reference clock track and optional additional prerecorded phase synchronization patterns are provided to enable writing of any random sector with frequency and phase matching of a random sector to the preceding and following sectors. The reference clock track and other phase synchronization patterns eliminate the need for preambles and extra space for speed variation. In a first embodiment, a disk has multiple layers, with at least one rewritable data layer and at least one reference layer. A spiral track on a surface of the reference layer has prerecorded patterns to be used for clocking. In a variation of first embodiment, the reference layer is also used for radial tracking control, eliminated the need for predefined tracks in the rewritable data layers. The reference layer is produced using the same technology as for read-only media, and is therefore very precise, low cost, and permanent. An additional laser system may be required to read the reference layer. The rewritable data layers may be unpatterned prior to writing. Alternatively, the rewritable data layers may include embossed sector or block headers to augment clock phase precision. In a second example embodiment, a single circular permanent (non-erasable) clock track is provided on a rewritable medium. The disk is then divided into radial zones, so that within each zone, the angular velocity of the disk is constant. A clock

signal from the permanent clock track is then ratioed for each radial zone.

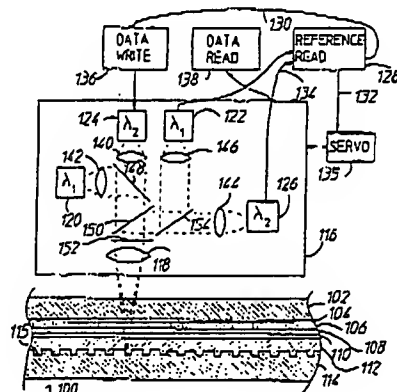


FIG 1

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EUROPEAN SEARCH REPORT

Application Number

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DOCUMENTS CONSIDERED TO BE RELEVANT			Relevant to claim	CLASSIFICATION OF THE APPLICATION (InCL8)
Category	Citation of document with indication, where appropriate, of relevant passages			
X	EP 0 516 125 A (SONY CORP) 2 December 1992 * the whole document *	1-3,7,9	G11B7/007 G11B7/013 G11B27/32 G11B11/10 G11B7/09 G11B7/00 G11B7/12 G11B7/24	
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The present search report has been drawn up for all claims				
Place of search THE HAGUE		Date of completion of the search 4 June 1998	Examiner Holubov, C	
CATEGORY OF CITED DOCUMENTS			T: theory or principle underlying the invention E: earlier patent document, but published on, or after the filing date D: document cited in the application L: document cited for other reasons A: member of the same patent family, corresponding document X: particularly relevant if taken alone Y: particularly relevant if combined with another document of the same category A: technological background O: non-written disclosure P: intermediate document	

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